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EXAMINER	
LI, RUIPING	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,464	MEKENKAMP ET AL.	
	Examiner	Art Unit	
	RUIPING LI	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and -9-72* is/are rejected.

7)☒ Claim(s) *5-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to the applicant response filed on 08/09/2010. In the applicant's response, applicant requests disqualification of the Zon reference used in the 35 USC § 103(a) by 102(e) date. Accordingly, claims 1-72 are pending and being examined.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 1-3, 10-12, 15, 17, 27-29, 32, 34-41, 44, 46-49, 52-54, 57, 59-60, 68-69 and 71-72 are rejected under 35 U.S.C. **102(a)**, as being anticipated by Zon (**US PUGPub 2003/01560973**).

As to claim 1, Zon discloses a user interaction system (**the universal remote control system, see fig.3 and [0027] lines 1-7**), comprising:

an electrical apparatus **(the monitor devices, see 200 in fig.3 and [0027] lines 6-7);**

a portable pointing device operable by a user for pointing to a region in space (**the universal remote control system, see fig.3 and [0027] lines 1-7**);

a camera taking a picture (**the video camera, see 100 in fig 3 and [0027] lines 6-7**); and

a digital signal processor **(the data analyzer, see 334 in fig.3)**, capable of receiving and processing the picture (**analyzing image, see [0033] lines 1-4**), recognizing an object in the region (**performing color matching/comparison for the video data, see [0033] lines 4-8**), and transmitting user interface information derived from the picture to the electrical apparatus (**using the communication channels and sending control signal to the devices, see 350, 360 in fig.3 and [0028] lines 1-8**), wherein the camera is connected to the pointing device so that in operation it images the region pointed to (**see [0027]**).

As to claims 2 and 68, Zon further discloses wherein the user interface information includes apparatus control data for controlling operation of the electrical apparatus (**permitting signals and data generated by the camera to be applied to control the monitors, see [0028] lines 1-8**).

As to claims 3, 69, Zon further discloses wherein the digital signal processor has an object characterizing means for characterizing an object or part of the object present in the picture of the region imaged by the camera, by providing first object characterizing features to object identification means for identifying the object (**analyzing/comparing the data generated by one of the monitors to determine a monitor specific set of correction commands, see [0033] lines 8-11**), and which object identification means is capable of outputting object identification data from which the user interface information is constructed **(generating index data in a LUT for retrieving correction commands, see [0033] lines 14-24)**.

As to claims 10, 27, 39, 52, Zon further disclose, comprising a camera and being capable of sending a picture to a digital signal processor (**the video camera, see 100 in fig 3 and [0027] lines 6-7**).

As to claims 11, 28, 40, 53, Zon further disclose, wherein the pointing device is capable of sending a picture to the digital signal processor (**sending image from camera 100 to processor 330, see fig.3**), which is capable of sending user interface information to an electrical apparatus based on the picture (**using the communication channels and sending control signal to the devices, see 350, 360 in fig.3 and [0028] lines 1-8**).

As to claims 12, 29, 41 and 54, Zon further discloses wherein the digital signal processor (120) is comprised in the pointing device (**the image analysis unit, see 334 in fig.3 and [0029] lines 11-14 and [0033] lines 8-11**).

As to claims 15, 32, 44, 57 and 71, Zon further discloses, comprising a programmable user interface code generator and a wireless transmitter for transmitting the code to the electrical apparatus (**the programmable ROM, see [0029] lines 14-18**).

As to claims 17, 34, 46, 59 and 72, Zon discloses the Electrical apparatus for use in a user interaction system as claimed in claim 1, comprising means which allow the electrical apparatus to send information about supported commands to a pointing device, based on an a call of the pointing device to the electrical apparatus (**display menu command, see [0031] lines 13-17**).

As to claim 35, Zon discloses a User interaction system (**the universal remote control system, see fig.3 and [0027] lines 1-7**), comprising: a first electrical apparatus (**the monitor 200a, see 200a in fig.3 and [0027] lines 6-7**); a portable pointing device operable by a user for pointing to a region in space (**the universal remote control system, see fig.3 and [0027] lines 1-7**);
a camera connected to the pointing device so that in operation it images the region pointed to for taking a picture (**the video camera, see 100 in fig 3 and [0027] lines 6-7**);

a digital signal processor **(the data analyzer, see 334 in fig.3)**,), recognizing an object in the region (**performing color matching/comparison for the video data, see [0033] lines 4-8**), and receiving and processing data of said picture, and capable of transmitting user interface information derived on the basis of said picture data to the first electrical apparatus (**using the communication channels and sending control signal to the devices, see 350, 360 in fig.3 and [0028] lines 1-8**); and an object displaying a characteristic pattern to facilitate recognition of said object by the digital signal processor (**the monitor 200b, see 200a in fig.3 and [0027] lines 6-7**).

As to claim 36, Zon discloses the User interaction system as claimed in claim 35, wherein the object displaying a characteristic pattern is a second electrical apparatus (**the monitor 200b, see 200a in fig.3 and [0027] lines 6-7**).

As to claims 37, Zon discloses the User interaction system as claimed in claim 36, wherein the second electrical apparatus comprises a display (**the monitor 200b, see 200a in fig.3 and [0027] lines 6-7**).

As to claims 38, Zon discloses the User interaction system as claimed in claim 35, wherein the object displaying a characteristic pattern is the first electrical apparatus (**the monitor 200a, see 200a in fig.3 and [0027] lines 6-7**).

As to claim 47, Zon discloses a User interaction system (**the universal remote control system, see fig.3 and [0027] lines 1-7)**, comprising: an electrical apparatus **(the monitor 200a, see 200a in fig.3 and [0027] lines 6-7)**; a portable pointing device operable by a user for pointing to a region in space **(the universal remote control system, see fig.3 and [0027] lines 1-7**);
a camera connected to the pointing device so that in operation it images the region pointed to for taking a picture **(the video camera, see 100 in fig 3 and [0027] lines 6-7**);
a digital signal processor **(the data analyzer, see 334 in fig.3)**, capable of receiving and processing data of said picture, recognizing an object in the region **(performing color matching/comparison for the video data, see [0033] lines 4-8**), and transmitting user interface information derived on the basis of said picture data to the electrical apparatus **(using the communication channels and sending control signal to the devices, see 350, 360 in fig.3 and [0028] lines 1-8**); and
wherein said user interface information includes a specification of the electrical apparatus, or of a part of the electrical apparatus intended to be used by the user (**the display menu commands which is corresponding to the aimed device, see [0031] lines 13-17**).

As to claim 48, Zon discloses the User interaction system as claimed in claim 47, wherein the electrical apparatus, or the intended part of the electrical apparatus is identified by determining the position of the electrical apparatus in the picture of the

region pointed to **(the camera located to take the entire image of the device, see [0032] lines 5-8)**.

As to claim 49, Zon discloses the User interaction system as claimed in claim 48, wherein the electrical apparatus, or the intended part of the electrical apparatus corresponds to a fixed position in the picture **(the camera located to take the entire image of the device, see [0032] lines 5-8)**.

As to claim 60, Zon discloses a User interaction system **(the universal remote control system, see fig.3 and [0027] lines 1-7)**, comprising:
an electrical apparatus **(the monitor 200a, see 200a in fig.3 and [0027] lines 6-7)**; a portable pointing device operable by a user for pointing to a region in space; a camera taking a picture **(the universal remote control system, see fig.3 and [0027] lines 1-7)**; and
a digital signal processor **(the data analyzer, see 334 in fig.3)**, capable of receiving and processing the picture, and capable of transmitting user interface information derived from the picture to the electrical apparatus **(using the communication channels and sending control signal to the devices, see 350, 360 in fig.3 and [0028] lines 1-8)**, wherein the camera is connected to the pointing device so that in operation it images the region pointed to characterized in that the system further comprises at least one localization beacon that can emit electromagnetic radiation, which can be captured by the system and for use to the digital signal processor in order

to recognize to where the pointing device is pointing by using information derived from the captured electromagnetic radiation **(analog/digital signal generated by the video camera, see [0032] lines 5-10)**.

B. Claims 1-3, 10-12, 15, 17, 27-29, 32, 34-41, 44, 46-49, 52-54, 57, 59-60, 68-69 and 71-72 are rejected under 35 U.S.C. **102(e)**, as being anticipated by Cheng et al (**US PUGPub 2004/0048663,** hereinafter "Cheng").

As to claims 1 and 35, Cheng discloses (**see fig.2**), comprising:
an electrical apparatus **(the display screen, see 10 in fig.2 and [0017]);**
a portable pointing device operable by a user for pointing to a region in space (**the pointer device integrated in a single chip, see 200 in fig.2, [0017], [0019] lines 1-4 and [0020]**);
a camera taking a picture (**the video camera, see 230 in fig.2 and [0017]**); and
a digital signal processor, capable of receiving and processing the picture **(the control circuit, computing circuit, and image processing circuit, see 211-213 in fig.2 and [0018] lines 5-11)**, recognizing an object in the region (**identify data, see 130 in fig.3 and [0025]**), and transmitting user interface information derived from the picture to the electrical apparatus (**the communication interface, a set of buttons, see 220 and 240 in fig.2 and [0019])**, wherein the camera is connected to the pointing device so that in operation it images the region pointed to **(see fig.2 and [0017])**.

As to claims 2 and 68, Cheng further discloses wherein the user interface information includes apparatus control data for controlling operation of the electrical apparatus (**the buttons correspond to different switches which control operation of the electrical apparatus, see 240 in fig.2 and [0019]**).

As to claims 3, 36-38, 69, Cheng further discloses wherein the digital signal processor has an object characterizing means for characterizing an object or part of the object present in the picture of the region imaged by the camera, by providing first object characterizing features to object identification means for identifying the object (**identifying the data obtained by the camera and providing the coordinate values of the four corners and center point to the computing unit, see step 130-140 in fig.3 and [0026]**), and which object identification means is capable of outputting object identification data from which the user interface information is constructed **(feed the coordinate values back to game machine unit, see step 170 in fig.3 and [0029])**.

As to claims 10, 27, 39, 52, Cheng further disclose, comprising a camera and being capable of sending a picture to a digital signal processor (**the video camera, see 230 in fig.2 and [0017]**).

As to claims 11, 28, 40, 53, Cheng further disclose, wherein the pointing device is capable of sending a picture to the digital signal processor (**transmitting the video signal to the image processing circuit, see [0024] lines 1-3**), which is capable of

sending user interface information to an electrical apparatus based on the picture (**transmitting the processed signal to the control circuit, see [0024] lines 3-5**).

As to claims 12, 29, 41 and 54, Cheng further discloses wherein the digital signal processor (120) is comprised in the pointing device (**the control circuit, computing circuit, and image processing circuit of the pointer control decice are integrated in a single chip, see [0019]**).

As to claims 15, 32, 44, 57 and 71, Cheng further discloses, comprising a programmable user interface code generator and a wireless transmitter for transmitting the code to the electrical apparatus (**a set of buttons, see 240 in fig.2 and [0019]**).

As to claims 17, 34, 46, 59 and 72, Cheng discloses the Electrical apparatus for use in a user interaction system as claimed in claim 1, comprising means which allow the electrical apparatus to send information about supported commands to a pointing device, based on a call of the pointing device to the electrical apparatus (**a set of buttons, see 240 in fig.2 and [0019]**).

As to claim 47, Cheng discloses a User interaction system, comprising:
an electrical apparatus **(the display screen, see 10 in fig.2 and [0017])**;
a portable pointing device operable by a user for pointing to a region in space (**the pointer device integrated in a single chip, see 200 in fig.2, [0017], [0019] lines 1-4**

and [0020]);

a camera connected to the pointing device so that in operation it images the region pointed to for taking a picture (**the video camera, see 230 in fig.2 and [0017]**);

a digital signal processor **(the control circuit, computing circuit, and image processing circuit, see 211-213 in fig.2 and [0018] lines 5-11)**, capable of receiving and processing data of said picture, recognizing an object in the region (**identify data, see 130 in fig.3 and [0025]**), and transmitting user interface information derived on the basis of said picture data to the electrical apparatus (**the communication interface, a set of buttons, see 220 and 240 in fig.2 and [0019]**); and

wherein said user interface information includes a specification of the electrical apparatus, or of a part of the electrical apparatus intended to be used by the user (**the communication interface, a set of buttons, see 220 and 240 in fig.2 and [0019]**).

As to claim 48, Cheng discloses the User interaction system as claimed in claim 47, wherein the electrical apparatus, or the intended part of the electrical apparatus is identified by determining the position of the electrical apparatus in the picture of the region pointed to (**identifying the data obtained by the camera and providing the coordinate values of the four corners and center point to the computing unit, see step 130-140 in fig.3 and [0026]**)).

As to claim 49, Cheng discloses the User interaction system as claimed in claim 48, wherein the electrical apparatus, or the intended part of the electrical apparatus

corresponds to a fixed position in the picture (**identifying the data obtained by the camera and providing the coordinate values of the four corners and center point to the computing unit, see step 130-140 in fig.3 and [0026]**).

As to claim 60, Cheng discloses a User interaction system comprising: an electrical apparatus (**the display screen, see 10 in fig.2 and [0017]**); a portable pointing device operable by a user for pointing to a region in space (**the pointer device integrated in a single chip, see 200 in fig.2, [0017], [0019] lines 1-4 and [0020]**); a camera taking a picture (**the video camera, see 230 in fig.2 and [0017]**); and a digital signal processor (**the control circuit, computing circuit, and image processing circuit, see 211-213 in fig.2 and [0018] lines 5-11**), capable of receiving and processing the picture (**identify data, see 130 in fig.3 and [0025]**), and capable of transmitting user interface information derived from the picture to the electrical apparatus (**the communication interface, a set of buttons, see 220 and 240 in fig.2 and [0019]**), wherein the camera is connected to the pointing device so that in operation it images the region pointed to characterized in that the system further comprises at least one localization beacon that can emit electromagnetic radiation, which can be captured by the system and for use to the digital signal processor in order to recognize to where the pointing device is pointing by using information derived from the captured electromagnetic radiation (**the photographic pointer positioning control device, CMOS sensor camera, image processing circuit, and communication**

interface are integrated in a single chip, which is suitable for use to control the positing of the pointer, see fig.2 and [0019]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A. Claims 4, 9, 13-14, 16, 18-26, 30-31, 33, 42-43, 45, 50-51, 55-56, 58, 61-67 and 70 are rejected under 35 U.S.C. 103(a), as being unpatentable over Zon in view of Silverstein (**EP 1130906**). Silverstein is cited by applicant in IDS and filed on 12/14/2005.

As to claims 4, 19, 23, 65, Zon does not disclose motion trajectory estimation means for estimating a motion trajectory of the pointing device. However, Silverstein does teach a digital signal camera to be used as a pointing device, comprising:
motion trajectory estimation means for estimating a motion trajectory of the pointing device and outputting a first motion characterizing signature, a signature being a

mathematical abstraction of the motion trajectory **(the motion detection unit, see 130 in fig.1 and [0013] lines 4-6**); and

signature identification means for identifying the first motion characterizing signature and outputting command identification data, which represents a user interaction command, corresponding with the first motion characterizing signature, from which command identification data the user interface information is constructed **(the target icon selection unit which is corresponding to the movement of the point device, see [0016] lines 16-22**).

It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Zon in order to robustly and accurately permitting cursor control and designation in digital camera display **(Silverstein, [0006]).**

As to claims 9, 20, 63, the combination of Zon and Silverstein further discloses the first motion characterizing signature is derived on the basis of successive pictures imaged by the camera at respective instances of time **(Silverstein, using the changes between subsequent images to calculate a mount and direction of the motion, see [0012] lines 39-41**).

As to claims 13, 21, 30, 42, 55, 62, Zon discloses the Pointing device as claimed in claim 10. Zon does not disclose comprising motion sensing means for sensing a motion trajectory of the pointing device. **However**, Silverstein does teach comprising motion

sensing means for sensing a motion trajectory of the pointing device (**motion sensor such as gyroscopes, see [0011] lines 17-19, and [0012] lines 41-50**). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Zon in order to robustly and accurately permitting cursor control and designation in digital camera display **(Silverstein, [0006]).**

As to claims 14, 31, 43, 56 and 70**,** Zon discloses the Pointing device as claimed in claim 10. Zon does not disclose comprising a characteristic projector for optically projecting a characteristic pattern towards a region pointed to. **However**, Silverstein does teach comprising a characteristic projector for optically projecting a characteristic pattern towards a region pointed to **(viewfinder, see 160 in fig.1 and [0017]).** It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Zon in order to robustly and accurately permitting cursor control and designation in remote control device **(Silverstein, [0006]).**

As to claims 16, 25-26, 33, 45, 50-51, 58, 66-67, Zon discloses the Pointing device as claimed in claim 10. Zon does not disclose comprising feedback means for feedback of user interface information. **However**, Silverstein does teach comprising feedback means for feedback of user interface information **(displaying view field selected by the viewfinder, see [0032] lines 24-27**). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the

teaching of Zon in order to robustly and accurately permitting cursor control and designation in digital camera display **(Silverstein, [0006]).**

As to claim 18, Zon discloses a User interaction system, comprising: an electrical apparatus **(the monitor devices, see 200 in fig.3 and [0027] lines 6-7**); a portable pointing device operable by a user for pointing to a region in space (**the universal remote control system, see fig.3 and [0027] lines 1-7**);
a camera connected to the pointing device so that in operation it images the region pointed to for taking a picture (**the video camera, see 100 in fig 3 and [0027] lines 6-7**); and a digital signal processor **(the data analyzer, see 334 in fig.3)**, capable of receiving and processing data of said picture, , recognizing an object in the region (**performing color matching/comparison for the video data, see [0033] lines 4-8**), and transmitting user interface information derived on the basis of said picture data to the electrical apparatus (**using the communication channels and sending control signal to the devices, see 350, 360 in fig.3, [0028] lines 1-8, and [0027]**). Zon does not disclose motion sensing means for estimating the motion of the pointing device. However, Silverstein does teach motion sensing means for estimating the motion of the pointing device (**the motion detection unit, see 130 in fig.1 and [0013] lines 4-6**). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Zon in order to robustly and accurately permitting cursor control and designation in digital camera display **(Silverstein, [0006]).**

As to claims 22, 61 and 64, the combination of Zon and Silverstein discloses the User interaction system as claimed in claim 18 wherein the transmitted user interface information includes at least one feature selected from the group consisting of motion speed, motion direction, and acceleration of the pointing device (**Silverstein, calculating direction of motion, see [0012] lines 39-41**).

As to claim 24, the combination of Zon and Silverstein discloses the User interaction system as claimed in claim 18, further comprising room localization beacons for emitting electromagnetic radiation, wherein the digital signal processor is arranged to recognize to which part of the room the pointing device is pointing (**analog/digital signal generated by the video camera, see [0032] lines 5-10**).

B. Claims 4, 9, 13-14, 16, 18-26, 30-31, 33, 42-43, 45, 50-51, 55-56, 58, 61-67 and 70 are rejected under 35 U.S.C. 103(a), as being unpatentable over Cheng in view of Silverstein (**EP 1130906**). Silverstein is cited by applicant in IDS and filed on 12/14/2005.

As to claims 4, 19, 23, 65, Cheng does not disclose motion trajectory estimation means for estimating a motion trajectory of the pointing device. However, **Silverstein** does teach a digital signal camera to be used as a pointing device, comprising: motion trajectory estimation means for estimating a motion trajectory of the pointing

device and outputting a first motion characterizing signature, a signature being a mathematical abstraction of the motion trajectory (**the motion detection unit, see 130 in fig.1 and [0013] lines 4-6**); and

signature identification means for identifying the first motion characterizing signature and outputting command identification data, which represents a user interaction command, corresponding with the first motion characterizing signature, from which command identification data the user interface information is constructed (**the target icon selection unit which is corresponding to the movement of the point device, see [0016] lines 16-22**).

It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Cheng in order to robustly and accurately permitting cursor control and designation in digital camera display (**Silverstein, [0006]).**

As to claims 9, 20, 63, the combination of Cheng and Silverstein further discloses the first motion characterizing signature is derived on the basis of successive pictures imaged by the camera at respective instances of time (**Silverstein, using the changes between subsequent images to calculate a mount and direction of the motion, see [0012] lines 39-41**).

As to claims 13, 21, 30, 42, 55, 62, Cheng discloses the Pointing device as claimed in claim 10. Zon does not disclose comprising motion sensing means for

sensing a motion trajectory of the pointing device. **However**, Silverstein does teach comprising motion sensing means for sensing a motion trajectory of the pointing device (**motion sensor such as gyroscopes, see [0011] lines 17-19, and [0012] lines 41-50**). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Cheng in order to robustly and accurately permitting cursor control and designation in digital camera display (**Silverstein, [0006]).**

As to claims 14, 31, 43, 56 and 70, Cheng discloses the Pointing device as claimed in claim 10. Chengdoes not disclose comprising a characteristic projector for optically projecting a characteristic pattern towards a region pointed to. **However**, Silverstein does teach comprising a characteristic projector for optically projecting a characteristic pattern towards a region pointed to (**viewfinder, see 160 in fig.1 and [0017]).** It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Cheng in order to robustly and accurately permitting cursor control and designation in remote control device (**Silverstein, [0006]).**

As to claims 16, 25-26, 33, 45, 50-51, 58, 66-67, Cheng discloses the Pointing device as claimed in claim 10. Cheng does not disclose comprising feedback means for feedback of user interface information. **However**, Silverstein does teach comprising feedback means for feedback of user interface information (**displaying view field**

selected by the viewfinder, see [0032] lines 24-27). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Cheng in order to robustly and accurately permitting cursor control and designation in digital camera display (**Silverstein, [0006]).**

As to claim 18, Cheng discloses a User interaction system, comprising: an electrical apparatus **(the monitor devices, see 200 in fig.3 and [0027] lines 6-7**); a portable pointing device operable by a user for pointing to a region in space (**the universal remote control system, see fig.3 and [0027] lines 1-7**);
a camera connected to the pointing device so that in operation it images the region pointed to for taking a picture (**the video camera, see 100 in fig 3 and [0027] lines 6-7**); and a digital signal processor **(the data analyzer, see 334 in fig.3)**, capable of receiving and processing data of said picture, , recognizing an object in the region (**performing color matching/comparison for the video data**, **see [0033] lines 4-8**), and transmitting user interface information derived on the basis of said picture data to the electrical apparatus (**using the communication channels and sending control signal to the devices, see 350, 360 in fig.3, [0028] lines 1-8, and [0027])**. Zon does not disclose motion sensing means for estimating the motion of the pointing device. However, Silverstein does teach motion sensing means for estimating the motion of the pointing device (**the motion detection unit, see 130 in fig.1 and [0013] lines 4-6**). It would have been obvious to person skilled in the art at the time of the invention to combine the teaching of Silverstein into the teaching of Chenf in order to robustly and

accurately permitting cursor control and designation in digital camera display (**Silverstein, [0006]**).

As to claims 22, 61 and 64, the combination of Cheng and Silverstein discloses the User interaction system as claimed in claim 18 wherein the transmitted user interface information includes at least one feature selected from the group consisting of motion speed, motion direction, and acceleration of the pointing device (**Silverstein, calculating direction of motion, see [0012] lines 39-41**).

As to claim 24, the combination of Cheng and Silverstein discloses the User interaction system as claimed in claim 18, further comprising room localization beacons for emitting electromagnetic radiation, wherein the digital signal processor is arranged to recognize to which part of the room the pointing device is pointing (**analog/digital signal generated by the video camera, see [0032] lines 5-10**).

Allowable Subject Matter

4. Claims 5-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

As to claims 5-6, no prior art in record teaches: "wherein the digital signal processor includes identification improvement means, which are capable of further improving a probability that the object represented as object identification data, and user interaction command represented as command identification data, are more reliably identified based on predetermined rules, yielding more reliable user interface information".

As to claim 7, no prior art in record teaches: "wherein the digital signal processor includes object association means for providing to the object identification means object association data comprising at least one of the data entities being: associated object characterizing features and object related data, the object association data being derivable from object template data in object memory originating from at least one of the methods:
the object template data is obtained from object training means performing a predetermined calculation on second object characterizing features outputted by object characterizing means; and the object template data is derived from inputted object data."

As to claim 8, no prior art in record teaches: "wherein the digital signal processor includes signature association means for providing to the signature identification means

signature association data comprising at least one of the data entities being: associated signature features and command related data, the signature association data being derivable from signature template data in signature memory originating from at least one of the methods:

the signature template data is obtained from signature training means performing a predetermined calculation on a second motion characterizing signature outputted by the motion trajectory estimating means ; and

the command template data is derived from inputted command data."

Response to Arguments

6. Applicant's arguments with respect to claims 1-72 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUIPING LI whose telephone number is (571)270-3376. The examiner can normally be reached on 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RUIPING LI/
Examiner, Art Unit 2624

8/17/2010

/Samir A. Ahmed/

Supervisory Patent Examiner, Art Unit 2624